

WHAT IS CLAIMED IS:

1. A circuit for current regulation, comprising:
 - a regulation circuit coupled to a power supply and to a first node and configured to generate a regulated current;
 - a first resistor coupled between the first node and a second node and configured to generate a signal relating to the regulated current that is supplied to a load;
 - a second controller coupled to the second node and configured to generate a second control signal used to adjust the regulated current; and
 - a controller having a first input coupled to the first node and a second input coupled to the second control signal and an output coupled to the regulation circuit, wherein the controller is configured to generate a control signal used to generate the regulated current.
2. The circuit of Claim 1, further comprising a reference voltage coupled to the first input and the regulation circuit.
3. The circuit of Claim 1, wherein the regulation circuit is a transistor that is coupled to the control signal generated by the controller.
4. The circuit of Claim 1, wherein the second control further comprises a second resistor and at least one current source.
5. The circuit of Claim 1, wherein the controller further comprises an amplifier.
6. The circuit of Claim 4, wherein the regulation circuit is a transistor that is coupled to an output of the amplifier.

7. The circuit of Claim 6, further comprising a reference voltage coupled to an input of the amplifier.

8. The circuit of Claim 4, wherein the at least one current source is activated in response to a predetermined condition.

9. The circuit of Claim 8, wherein the predetermined condition is related to a temperature associated with the circuit.

10. The circuit of Claim 8, wherein the amplifier is configured to generate the control signal such that the regulated current is driven to zero safely.

11. An apparatus for current regulation, comprising:
a transistor coupled to a power supply, a first node, and a second node;
a sense resistor coupled between the first node and a third node;
a second resistor coupled between the third node and a fourth node;
a first current source coupled to the fourth node; and
an amplifier having a first input coupled to the first node and a second input coupled to a fourth node, and an output coupled to the second node.

12. The apparatus of Claim 11, further comprising a voltage reference coupled to the first input of the amplifier.

13. The apparatus of Claim 11, wherein the base of the transistor is coupled to the second node, the emitter is coupled to the power supply and the collector is coupled to the first node.

14. The apparatus of Claim 11, further comprising a load coupled to the third node.

15. The apparatus of Claim 11, further comprising at least one additional current source coupled to the fourth node.

16. A method for current regulation of a circuit, comprising:
generating a regulated current that is supplied to a load;
monitoring the circuit for a predetermined condition;
activating a second control signal by using at least one current source when the predetermined condition occurs; and
adjusting the regulated current using the at least one current source to vary the regulated current such that the regulated current may be safely driven to zero.

17. The method of Claim 16, wherein activating the second control signal further comprises utilizing a resistor and the at least one current source.

18. The method of Claim 17, wherein adjusting the regulated current further comprises utilizing a single amplifier.

19. An apparatus for current regulation, comprising:
means for generating a regulated signal;
means for sensing the regulated signal;
means for generating a second control signal that utilizes at least one current source; and
means for adjusting a magnitude of the regulated signal in response to the second control signal and the regulated signal.